

**UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF TEXAS  
TYLER DIVISION**

**Cheetah Omni LLC,**

*Plaintiff,*

vs.

**Alcatel-Lucent USA Inc., et al.**

*Defendants.*

HONORABLE LEONARD DAVIS

Case No. 6:11CV390

JURY TRIAL DEMANDED

**CHEETAH'S MOTION TO RECONSIDER  
THE COURT'S MEMORANDUM OPINION AND  
ORDER CONSTRUING "UNMODULATED  
OPTICAL SIGNAL," "UNMODULATED," AND  
THE "MODULATE" TERMS (DKT #235)**

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## MOTION

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On April 11, 2013, the Court issued its claim construction Memorandum Opinion and Order construing various terms of the patents-in-suit. Dkt #235 (“Order”). In particular, the Court construed the term “unmodulated optical signal” in Claims 1 and 18 of U.S. Patent No. 7,339,714 (“the ‘714 Patent”) as “a light beam that does not carry information” and “unmodulated” as “not carrying information.” Order at 22. The Court construed the “modulate” terms<sup>1</sup> as “vary[ing] to carry information.” Order at 22-23.

Cheetah asks the Court to reconsider its construction of “unmodulated optical signal,” “unmodulated,” and the “modulate” terms in Claims 1 and 18. As explained more fully below, Figure 15 is the relevant embodiment for Claims 1 and 18. Figure 15 unambiguously shows that the “unmodulated optical signal” carries information and that “modulation” adds information to a signal that already carries information.

Cheetah asks the Court to construe “unmodulated optical signal” as “light beam carrying information that has not been processed by the array of optical signal processing devices” and “unmodulated” as “not processed by the array of optical signal processing devices.” The various “modulate” terms should be construed as “add[ing] information to the optical signal.” These constructions are consistent with (1) the ‘714 patent, (2) the Court’s statement that “modulating an optical signal adds information to the signal,” Order at 22, and (3) the affirmed and undisputed construction of “optical signal” as “a light beam carrying information.”

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<sup>1</sup> The “modulate” terms are “to modulate,” “modulated,” and “modulation.”

## BRIEF IN SUPPORT

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### I. BACKGROUND

This Court first construed terms in the '714 patent in *Cheetah Omni LLC v. Samsung Electronics Am., Inc.*, 2009 WL 5196721 (E.D. Tex. Dec. 21, 2009) (Davis, J.), *aff'd*, 2010 WL 4008194 (Fed. Cir. Oct. 12, 2010) ("*Samsung*"). There, the Court addressed terms in apparatus Claim 18 and method Claim 19, both of which are asserted in the present lawsuit.<sup>2</sup> Importantly for the present case, the Court held that Figure 15 is the relevant embodiment for the asserted claims:

The relevant embodiment of Claims 18 and 19 is Figure 15, as cited by both parties, which is described as:

Fiber optic tap 1018 receives optical signals 1012 and sends one copy of the signal including at least **header information** 1014 to demultiplexer 1024, and sends another copy of the signal including at least **payload information** 1016 to delay line 1022.

'714 Patent, col. 21:6-10.

*Samsung*, 2009 WL 5196721 at \*4 (emphasis added).

Figures 1-6 of the '714 Patent describe different types of MEMS mirrors that can be used as building blocks for later embodiments in the '714 patent. (Exhibit 1, '714 Patent at 10:46-47: "The variable blazed grating apparatus depicted in FIGS. 1-6 can be useful in a myriad of applications"; *see also id.* at 12:48-54.) Those later embodiments are more complex systems that can perform functions "such as variable attenuation, optical switching, and/or add/drop multiplexing," depending on how the components are arranged and used. (*Id.* at 17:38-39.)

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<sup>2</sup> The relevant terms in Claim 18 are identical to the relevant terms in apparatus Claim 1. Only apparatus Claims 1 and 18 are at issue on this motion because only those claims include the "unmodulated" and "modulated" terms.

Construing the “modulate” terms in the present case, the Court focused primarily on Figures 1 and 7 and the patent’s disclosure of using “constructive interference and destructive interference” to achieve “attenuation” of optical signals. (Order at 20-21, citing the ‘714 Patent at columns 4, 8, 11, and 12.) The Court also discussed the patent’s reference to “switching” in conjunction with Figure 7 and concluded that “[s]uch a configuration operates as a binary switch.” *Id.*

But this discussion of Figures 1 and 7 is not relevant to the analysis of asserted Claims 1 and 18. Claims 1 and 18 require (i) an array of moving mirrors plus (ii) at least one other moving mirror (iii) arranged so that the optical signal can reflect from one to the other. For example, Claim 1 requires:

**a movable reflector [mirror #1] operable to receive at least a portion of the first signal part and to reflect that portion of the first signal part to an array of optical signal processing devices [mirror #2] . . . wherein at least some of the mirrors are operable to undergo a partial rotation . . .**

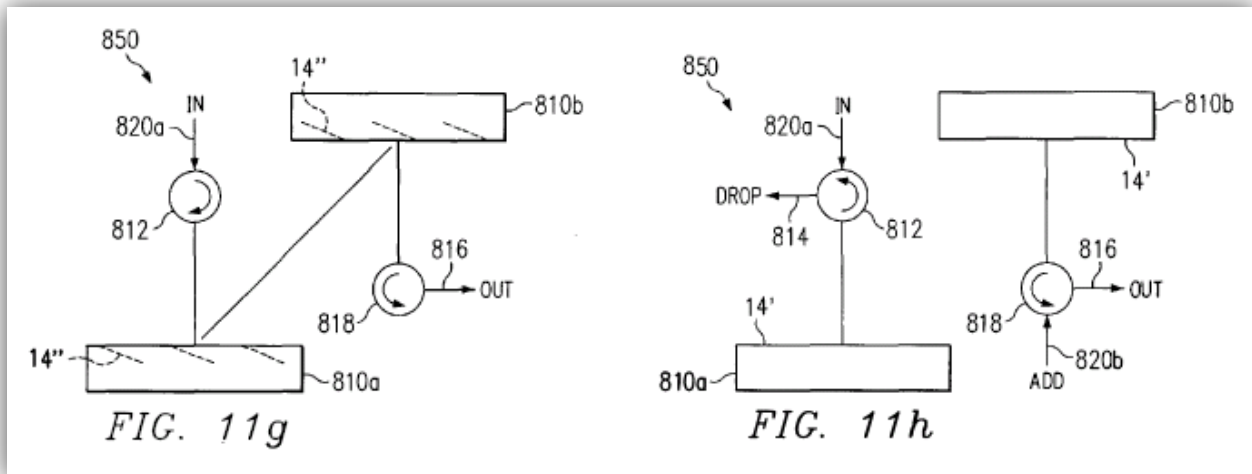
(‘714 Patent at 23:25-42, emphasis added.) Likewise, Claim 18 requires:

an array of optical signal processing devices . . . comprise: . . . a plurality of at least partially **reflective mirrors [mirror #1] . . . wherein at least some of the mirrors are operable to undergo a partial rotation . . .**;

and **a moveable reflector [mirror #2]** operable to receive at least some of the portion of the first signal part from the array of optical signal processing devices . . .

(*Id.* at 25:58-26:3, emphasis added.)

Only two Figures in the ‘714 Patent show the claimed two-movable-mirror configuration in detail, Figures 11g and 11h:

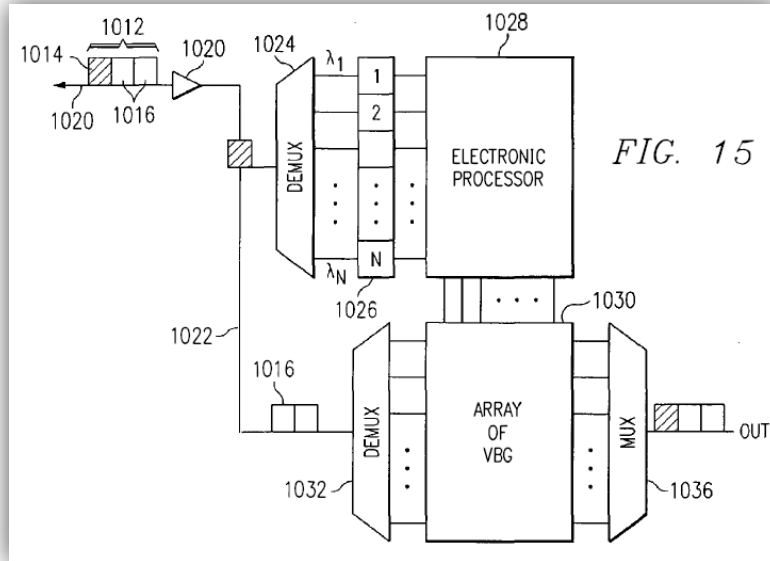


The text accompanying these Figures states that this is an embodiment of an “add/drop multiplexer.” (Exhibit 1, ‘714 Patent at 16:43-45.) Figures 11g and 11h show the same physical structure operating in two different modes – a pass-through mode (Figure 11g) and an add/drop mode (Figure 11h) – depending on the rotation of the mirrors.

In Figure 11g, the structure operates in a “pass-through mode” because the mirrors (14'') are rotated (angled) to send the incoming optical signal (820a) one from bank of mirrors (810a) to the other (810b) and through the device from “IN” to “OUT.” (*Id.* at 16:54-60.) Importantly, this operation does not involve the “interference” effects described by the Court in connection with Figures 1 and 7 – the optical signal passes through the device unaltered.

Figure 11h is identical to Figure 11g but with the mirrors (14') unrotated (flat). (Exhibit 1, ‘714 Patent at 16:61-17:2.) When the mirrors are in this position, the incoming optical signal (820a) reflects straight back to the circulator (812) and out the “DROP” port. (*Id.*) This allows a new signal (820b) to be added without interference from the dropped signal. (*Id.*) New signal 820b enters the “ADD” port, reflects straight back to circulator 818, exiting at the “OUT” port. (*Id.*) As with Figure 11g, this “add/drop” operation occurs without using interference effects.

The structures of Figures 11g/11h can be used as the “Array of VBG” (1030) shown in Figure 15, reproduced below. As the patent explains, the “VBG” array (1030) is “an optical



add/drop multiplexer array.”

(‘714 Patent at 20:53.) By properly rotating/unrotating the mirrors in the “VBG” array, an optical header (shaded box) can be added to the optical payload (white boxes 1016) from delay line 1022. (*Id.* at 21:23-32.) The

combined output is shown in Figure 15 as a series of shaded and white boxes at the port labeled “OUT”. In other words, the “VBG” array of Figure 15 acts like a switch in a railroad yard, switching optical information coming in from two different “tracks” and combining them onto a single “track.” This “track” switching does not involve interference effects. Instead, the “VBG” array “modulates” the outgoing signal merely by adding optical header information to the optical payload data.

The accused ROADMs work in much the same way – combining one optical signal (which carries information) with other optical signals (which also carry information). The Court’s current construction of “unmodulated optical signal” and “unmodulated” means that Claims 1 and 18 do not read on Figure 15 or Defendants’ accused ROADM products.

## II. Applicable Law

The Federal Rules of Civil Procedure do not specifically provide for motions for reconsideration, *Shepherd v. Int'l Paper Co.*, 372 F.3d 326, 328 n.1 (5th Cir. 2004), but a court may revise an interlocutory ruling “at any time before the entry of a judgment adjudicating all the claims and all the parties' rights and liabilities.” Fed. R. Civ. P. 54(b). Rule 59(e) governs a motion for reconsideration from interlocutory orders. *WI-Lan, Inc. v. Acer, Inc.*, 2010 U.S. Dist. LEXIS 138111 at \*23 (E.D. Tex. Dec. 30, 2010); *Beneficial Innovations, Inc. v. Blockdot, Inc.*, 2010 U.S. Dist. LEXIS 54151, 2010 WL 2246291 at \*7 (E.D. Tex. June 3, 2010). The grounds for granting a motion for reconsideration under Rule 59(e) include: “(1) an intervening change in controlling law; (2) the availability of new evidence not previously available; or (3) the need to correct a clear error of law or prevent manifest injustice.” *WI-Lan*, 2010 U.S. Dist. LEXIS 138111 at \*23 (quoting *In re Benjamin Moore & Co.*, 318 F.3d 626, 629 (5th Cir. 2002)).

In the present case, Cheetah submits that there is a need to correct a clear error of law with respect to the constructions of “unmodulated optical signal” and “unmodulated.”

### III. Argument

The Court construed the term “unmodulated optical signal” by first construing “modulating.” The Court stated that “modulating an optical signal adds information to the signal.” Order at 22. Cheetah does not contest that finding because it does not require that the “optical signal” be devoid of information. One can add information to a signal that already carries information – as shown in the Figure 15 embodiment. And that finding is consistent with the Court’s prior (and affirmed) construction of “optical signal.” Substituting in the definition of “optical signal,” the Court’s finding becomes: “modulating a light beam carrying information adds information to the signal.” That is consistent with the IEEE Dictionary, cited by the Court, which merely requires “transferring information” – it does not require that the signal, before modulation, be devoid of information. Order at 22.

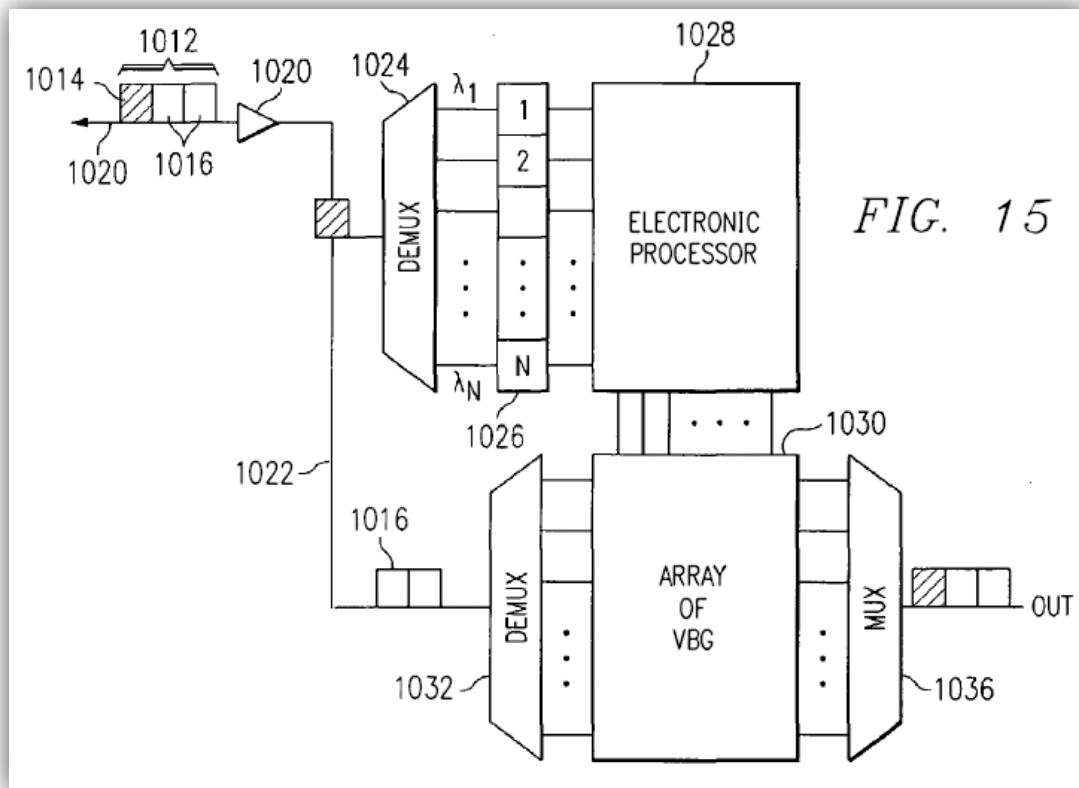
Cheetah respectfully submits that the Court erred when, after correctly saying that “modulating an optical signal adds information to the signal” it incorrectly stated, “[a]ccordingly, an unmodulated optical signal does not yet carry information.” (*Id.*) That conclusion does not follow because, as discussed, the “optical signal” may already carry information, even before it is modulated.

In the present case, the “optical signal” must carry information before it is modulated. That is required not only by the undisputed meaning of “optical signal,” but also because Figure 15 – the relevant Figure for the claims at issue – requires it.

In Figure 15, reproduced again below, the optical signal carries information at all times. The first limitation of Claims 1 and 18 is “an optical divider operable to receive an unmodulated optical signal.” As the Court explained in *Samsung* (quoted earlier), the “optical divider” is a fiber optic tap that sends a signal containing at least the header information (1014) through



demultiplexer (1024) to the Electronic Processor (1028). The “optical divider” also sends a copy of the signal containing at least payload information (1016) through demultiplexer (1032) to the VBG array (1030). Thus, in Figure 15, the “unmodulated optical signal” received by the “optical divider” always contains information (data 1012), contrary to the Court’s construction of “unmodulated optical signal.” In context, “unmodulated” simply means “not yet processed.”



In addition, Cheetah respectfully submits that the Court’s ultimate construction of the “modulate” terms, namely “vary[ing] to add information,” may imply that the signal carries no information before modulation. If so, it is contrary to Figure 15. For clarity, the “modulate” terms’ construction should correspond to the Court’s finding that “modulating an optical signal adds information to the signal.” Order at 22.

#### IV. CONCLUSION

For these reasons, Cheetah asks the Court to construe “unmodulated optical signal,” “unmodulated,” “to modulate,” “modulated,” and “modulation” as follows:

unmodulated optical signal	light beam carrying information that has not been processed by the array of optical signal processing devices
unmodulated	not processed by the array of optical signal processing devices
to modulate	to add information to the optical signal
modulated	added information to the optical signal
modulation	adding information to the optical signal

Respectfully submitted,

Dated: April 24, 2013

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**CERTIFICATE OF SERVICE**

I hereby certify that the all counsel of record for Defendants who are deemed to have consented to electronic service are being served this 24th day of April, 2013, with a copy of this document via electronic mail per Local Rule CV-5(a)(3).

/s/ Thomas A. Lewry